INDEXA

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Juan de Nova, FT4JA 2016

By Seb Poulenard F5UFX 7 & Flo Moudar F5CWU

From April 29th to May 10th, 2016, a team made up of Seb F5UFX, Flo F5CWU, Vincent F4BKV, Gil F4FET, Yann F1NGP, Pat F2DX, Jack F6BEE, Pascal F5PTM, Diégo F4HAU, Chris EA3NT, went to Juan de Nova, an island located between Madagascar and Mozambique. The island is flat and covers an area of 4.4 square kilometers. It is surrounded by a coral reef which harbors a vast lagoon.

The FT4JA team pauses from serving the pileup to have a photo op.

Forests, mainly of Casuarinaceae (Le Filao), cover about half the island. It is named after a Portuguese captain Joao da Nova who discovered it in 1501. In the absence of foreign presence, the island was attached to the colonial empire of France in 1896 and passed under the French flag the following year. Since 2007, it is now attached, like the other Scattered Islands, to the administration of the TAAF (Terres Australes et Antarctiques Françaises).

EPILOG

The thud of the chain pulling up the anchor of the “Antsiva” puts an end to the last moments of calm prior to our departure for Mayotte (FH). All operators stand on the deck quietly looking at the last view of the Island, before setting off on the ocean journey toward home. On the shore, the static sky blue color contrasts with the deep green of the luxuriant vegetation stretching along the beach. We salute the solitary gendarme standing on the beach, craning his neck and bidding us bon voyage. He watched until we were just a speck in the distance.

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It was only then we thought about our last two weeks on Juan de Nova and the energy spent overcoming the various technical and physical challenges required of a DXpedition, the culmination of a year of hard work, preparation, planning and sacrifice. We felt extremely fortunate in getting the opportunity to again visit one of the scattered islands. Our time on Juan de Nova passed very quickly. We were all now in a good, light hearted mood, convinced that we had done everything possible to make our endeavor a success.

TWO WEEKS EARLIER . . .

After two days sailing, we arrived at Juan de Nova late in the afternoon, earlier than expected, due to the marine currents in the Mozambique channel between there and Mayotte. We could see the shoreline of Juan de Nova almost one kilometer away. What struck us, was the contrast between the immaculate white sand which seemed to spout out from the water and the filaos (trees) which formed a thick and dark layer. The last moments of daylight provided a red color to the landscape before the darkness quickly settled. We could see the red lantern of the lighthouse close to the western point of the Island. It warns passing ships of the stretch of land between Madagascar and Mozambique.

Tuesday, March 29th 2016 - Before the first lights of dawn, the excitement among the participants began to peak aboard the "Antsiva", a 28m long yacht specializing in adventure cruising and trips such as the one we had set out upon. Although we had spent the night in a calm mooring, the growing excitement did not bring an easy sleep. It was hard to accept that the fifth rarest country for radio amateurs in the world was just a short distance away. No alarm clocks were necessary as each team member was anxious to make ready for the day ahead. Beds were abandoned and even breakfast was short lived as we began to assemble equipment on the deck in preparation of transport to the shore. Before dawn, we worked by the light from our headlamps. In total we had brought one and a half tons of equipment to Juan de Nova. During the voyage the equipment had to be stowed in many different parts of the boat. All this had to be carried to the disembarkation point of the boat in the specific order it had to be transported ashore. The number of rotations ashore depended upon the state of the tide, so there was considerable meticulous planning to get as much equipment to the island in the time available. Every item was numbered to make this task easier. All ten operators assisted by the crew, worked effectively to get as much ashore as possible. At 6 a.m. the crew launched the tender of the Antsiva. Two tents, tools and the first of the antennas were loaded. The first trip to the shore included three operators. They were met on the beach by the local gendarme accompanied by a couple of soldiers complete with tractor and trailer.

Even on Juan de Nova we had to show our passports and our paperwork to the authorities before we could start about our business. As the leading group made their way to the radio area, the tender made its way back to the yacht. We crossed through the military camp and along the edge of the runway before reaching our spot at the edge of the forest. Excitement continued to grow as we drove past places we had studied in photographs during many months of preparation. Our dream was slowly becoming reality. Suddenly the convoy stopped. Barring our way was a spider as big as your hand. It was very slowly and carefully assisted into the long grass which bordered the track. Eventually, we reached the place we had chosen for our operating positions. The

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The Antsiva's tender was used to shuttle our gear ashore across the shallow flats inside the outer reef.

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place was much different than we had imagined from the satellite photographs. We did not think it possible to establish a site in the long and coarse grass even if overlooking the logistical transport problems. It would also be dangerous for team members to cross the field day and night. We discussed the problem with the gendarme, who suggested a tour of the area to allow us to select a better location. Eventually we found a location with no trees which satisfied the environmental constraints of our permit—our proximity to the water and avoidance of certain types of vegetation and bird laying areas. We obtained the agreement of the gendarme and also of TAAF.

While all this was taking place, the tender had been going back and forth to the yacht bringing more personnel and equipment to the shore to ensure that as much as possible had been brought ashore before low tide. All the equipment was taken to the new campsite and we began to assemble our tents. In a cloudless sky, the temperature gradually rose to 40 degrees C. (104 degrees F.) Between the sand and the lack of wind, it was like working in hell. The difficult conditions meant that we had to continually stop to drink water to keep us hydrated. We worked hard all day and by the time the sun began to set in the sky, the camp was almost complete. We battled against the clock to make the place livable before darkness which was accompanied by voracious hordes of mosquitoes which attacked us constantly despite being covered with repellant.

After a day working under the hot sun, everybody was exhausted. We made our way to the TAAF buildings to enjoy our first proper meal before retiring to our camp beds to enjoy a few hours of well deserved rest. We awoke before sunrise at 5 a.m. Still exhausted from our previous day's efforts, but fortified by a cup of strong coffee, we set out again to complete all that was necessary to initiate radio operations.

Already it was hot, soon it would again be insufferable. We had to install three generators, which to avoid contaminating the earth, had to be set on large sheets of plastic. This was an important consideration to safeguard the environment as agreed in our operating plan with TAAF. We laid out 1,500m of coaxial cable and 2,500m of radials. Electrical connections to the operating positions were also set out. Tent number one hosted three HF stations while tent number two had three HF stations plus a 6m station.

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Our three diesel generators were placed on plastic sheeting to contain any fuel spills that otherwise would contaminate the soil.

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The formation of the operating team is a very important consideration on these adventures. In addition to operators' skills, we made a serious point of forming a cohesive group. The core members of the group had previously been to Tromelin and so the same group went to Juan de Nova joined by some new members whom we felt met all our criteria. During our mid-day break, we had one final opportunity to gather the complete team to remind ourselves of our plan and goals and to discuss matters of operating and general site safety. The world was waiting for us.

After toiling in the hot sun for almost two full days, we finally had our radio "shacks" ready to go.

Our first contact was with our chief-pilot station, Cedric F5UKW at exactly 1237z. We were able to get the latest news from France before hitting the airwaves with several stations, soon to be seven in number before the afternoon was over. Operating soon took on a momentum of its own with many stations having waited for years to make a contact with Juan de Nova. Pileups were huge and soon a very fast rhythm was established. Those who were not operating, worked outside the operating tent, to make adjustments and tidy up the installation so that the operators could concentrate on making QSOs.

Our band plan was designed to coexist with VK0EK, the Heard Island DXpedition, which was taking place at the same time. We designed an easy to read, easy to follow table to try to avoid conflict or at least keep it to a minimum. We also paid extra attention to those zones which we thought would be the most difficult to contact. Our operating plan was designed so that all regions of the world would have a chance of a QSO with Juan de Nova.

After the initial rush, the team was split into two so that 24 hour operation was possible. After the first day of operation there were already 10,000 QSOs in the log. We had established a rhythm which we hoped would continue for the duration. Propagation conditions were better than we had hoped for, making it possible to make QSOs on the higher bands.

Each station was similarly equipped with an Elecraft K3, an SPE Expert 1.3 KFA amplifier and a Microham Microkeyer II. In addition each station had the necessary band pass filters, homemade splitters, RX limiters loaned by DX Engineering and preamplifiers by KD9SV. In addition, SDR transceivers (SunSDR Pro 2) completed the setup and were used to perform some experiments, especially on CW (use of panoramical RX + CW skimmer). These tests were successful and very interesting with such difficult working conditions in overcrowded bands. All seven stations were networked using WinTest logging software. The antennas of choice were two element Vertical Dipole Arrays from 10m to 20m. In addition to their compactness, their performance is undeniable, particularly so when placed near the ocean. On 30m and 40m we utilized a four square, and on 80m and 160m, verticals using Spiderbeam Poles filled out our antenna complement. A multiband Yagi came in support, in particular to permit us to have, at certain hours, two stations on the same band. The 6m antenna was a 6 element Yagi made by DXBeam. All antennas were connected with low loss and extremely light weight coaxial cable manufactured by our Italian partner, Messi and Paolini (Airborne 10). To improve our reception on 160 and 80m, two 200m beverage antennas and phased pennant antennas were used. Equipment lent by DX Engineering and KD9SV enabled us to adapt to the configuration.

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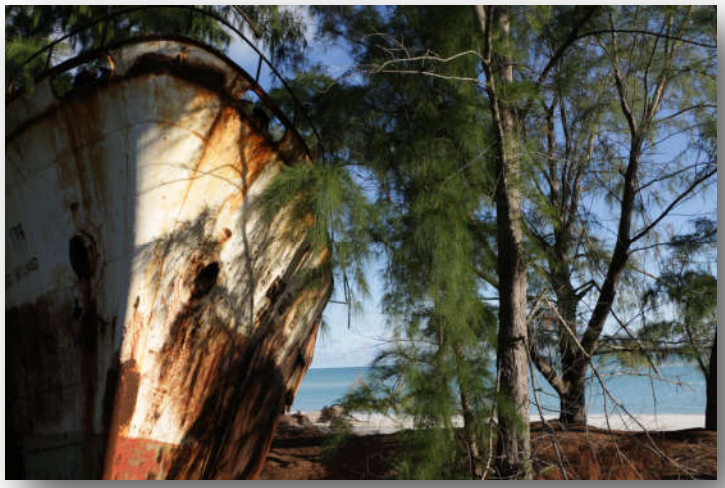
While each day was different, we managed to maintain our rate of almost 10,000 QSOs per day. We realized that as fatigue would inevitably begin to set in, our rate might be difficult to maintain during the second week. Rest periods did not always meet their intended purpose because it was hard to nap in 40 degrees Celsius temperatures and night time sleep was too soon interrupted to be back in front of the radio for the sunrise openings on the low bands.

As with any DXpedition, the site has to be maintained, antennas have to be maintained, meals have to be prepared, press releases and articles for schools written, video reports filmed and the like. Every team member was fully occupied and played their part in the success of the mission. We exchanged messages with our pilot station via our sat-phone. Information received allowed us to adjust our operating plan taking into account the differences in propagation. Once per day, the log was uploaded to Clublog.

As the days pass our routines and habits are almost automated. Each day we receive a visit from the gendarme who inquires about our contact total and if we have any problems for him to solve. He was always there to help out and on more than one occasion mobilized the soldiers to carry water and remove waste for re-cycling. We were happy for him to watch our activities and he was intrigued and amazed at how we could communicate with the world using only pieces of wire. One morning, several of us accompanied him on his daily tour of the Island. His patrol checks on pollution, traces of intrusion to the island or anything out of the ordinary which he would report to the Prefect. He would also check on the Island's turtles and count the number of tracks left by the turtles on the beach overnight. During our tour we discussed many things and it was an enjoyable way to pass the time.

The operating positions were placed approximately one and a half kilometers from the sleeping tent. Day and night to get from one to the other we have to pass one of the two cemeteries on the Island and a lighthouse. Near the lighthouse on the beach is the wreck of the Kwang Myong, a 45m Korean ship which foundered in the seventies. Its hull, posed on sand is beaten by the floods with each high tide while the branches of filaos seem to swallow it's prow.



The wreck of the Korean "Kwang Myong" reminded us of the treachery of the seas for the unwary.

The last 500 meters to get to the operating location are done on the beach where it is necessary for us to climb over dead trees lying on the sand. We were allowed to use a TAAF building near the airstrip which once housed the weather station (La Goulette) and the gendarmerie, which have since been relocated to the main area. This building has toilets and two showers, fed by a tank on the roof. This provides us a few comforts. Our camp beds are set out in the main part of the building intended to lodge scientists during their missions. Rainwater is collected and stored in the tanks. To conserve this valuable resource, we do our best to collect water from the showers to use in the toilets or for the laundry.

One night, the low band operators made contacts under epic conditions, disturbed by the thunderstorms which burst over the ocean each evening. The high bands, almost dead for a few nights, were exploited almost until the morning. The stations of

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the west side of the USA had incredible signals on 20m and 17m. From the start of the DXpedition, 6m was disappointing with only very short openings to southern Europe (EA, SV, I) and middle East countries making only a few QSOs possible.

In spite of the adrenalin brought by monstrous pile-ups, fatigue is never far away and always wins in spite of the regular coffee breaks which push back the limits. As a last resort, we lie down on the ground about twenty minutes before going back to the pile-up. It is necessary to hold on! What a relief when fresh operators show up at the first gleams of daylight. Instructions are exchanged and we give up our seats. After refueling the three generators and checking the fuel stock, we leave the radio camp and retire to the sleeping area to have a rest. On one particular morning, the tide is low, water has withdrawn to the coral reef located more than one kilometer away, disclosing an immense sand field.

The uniformly shallow water inside the surrounding reef opens a large sandy expanse when the tides drop the water level only a small amount.

Relatively quickly, enormous grey clouds develop in the sky. In the western direction, a double rainbow shows up and our cameras capture it. The light is splendid.

A storm over the water can produce some memorable visual effects.

As we return to the TAAF building, we learn what the enormous grey clouds contain. An enormous wind and rain falls down on the island, pouring thousands liters of water, mingled with violent gusts of wind. The roof pours water in torrents. Under the courtyard, we have breakfast but we do not hide our concern about these gusts of winds and its cloudburst. Is the radio camp flooded? Have the tents resisted the gusts? What about the generators? We are imagining the worst has happened! Maybe this episode means the end of the DXpedition. In a lull, and in spite of the tiredness, we run up to the radio camp. This kilometer and a half felt like ten. We fear what the "battleground" will look like. However, at midway, we perceive the humming of a generator, then see the silhouette of some of our verticals. Once we arrived at the camp, we discover the team running the pile-up peacefully. They managed the crisis very well. There is no damage except to the capacitance hat of the 160m vertical. Reassured and happy to have escaped this incident without serious consequences, we return to take a few hours of rest, benefitting from the freshness brought by the rain which continues to fall, filling the water reserves of the island.

As we get towards the end of the second week we are looking to break the 100,000 QSO mark. This goal is all consuming. We activate all seven sta-

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tions whenever possible. The QSOs are fast and furious. There is at least one station on 15m throughout the 24 hour period in order to maximize QSOs—especially uniques.

Six meters EME proved disappointing and did not lead to a complete 2-way contact. However, what was all the more infuriating, our signals were heard and we received several reports, without ever successfully completing a contact.

Three days before the end of our mission, it was necessary for us to complete the reports and interviews which were to be used for a video of the DXpedition. With this intention, we leave the camp at dawn in order to benefit from the exceptional light. At the end of the landing runway, several cottages house the equipment of weather stations from which the data is transmitted automatically. The first permanent station goes back to 1973, taking over the 20 year old auxiliary station called " La Goulette". This was named after Captain Marcel Goulette who was forced to land on Juan de Nova with his Farman 190 in 1929. He left about two months later, having arranged a rough runway. Nowadays, at 1200 meters in length, the runway is the essential link with the outside and makes it possible for military planes to carry out the changing of staff every 45 days.

This aerial view of Juan de Nova allows viewing the air strip as well as the large sand flats created by the surrounding reef.

We go along the runway bordered by tall filaos which is without doubt the most represented species of trees on the island. The flora is relatively poor. Some coconuts, vestiges of an old copra plantation, are drawn up close to the TAAF building. At the top of the beach, we note the presence of some "velvet trees". The heart of the island is a patchwork of vast clearings covered with high grasses and more wooded parts. Midway down the runway, we turn and enter the forest. We keep our eyes open because these underwoods are a hunting ground for the big spiders which weave immense inclined webs while waiting for their prey. The way curves to a clearing where there is a large stone house. Although in ruins, the "Patureau House" appears massive with its two levels perched on a vast concrete base. Its imposing staircases and its ironwork give it the air of a mansion.

The "Patureau House" is a remnant of the mid-century phosphate operation that eventually ceased due to falling phosphate prices.

In 1952 Hector Patureau obtained from the French government a concession to extract guano from Juan de Nova. Phosphate derived from the guano is used for fertilizer. The exploitation thrived and employed many workers. The Patureau House was constructed during this period. When phosphate prices collapsed, the operation closed at the end of the Sixties. The last workers left the island in 1975. Today, only ruins of this short industrial adventure

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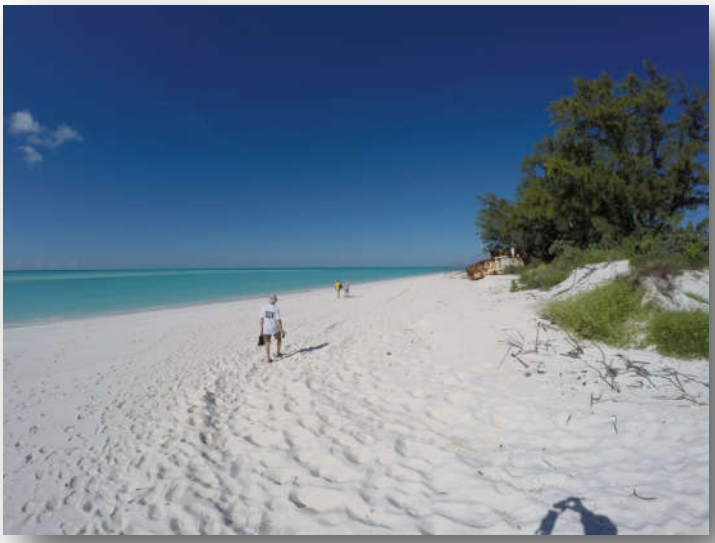
remain and are slowly being absorbed by the vegetation. A path leads us towards the east to the SEGA camp which hosts the military detachment, installed partly in the buildings which formerly lodged the workers. Then, we head in direction of the beach and pass in front of the dechetery of the island where all rubbish is carefully sorted. All collected waste, including that collected from the beach is gathered there. Regularly, this material is removed from the island then recycled. On the ground, sections of rails which were used to convey the "Decauville railway carriage" full of phosphate still exist. We follow them to the bottom of the old pontoon, partly collapsed, which stretches out into the lagoon which is where the ore was loaded onto boats for transportation to Europe.



With a modicum of island exploration under the belts of a few of us, we must return to "base" to relieve the operators handing out QSOs.

Time passes too quickly. It is time to go back to the radio camp to relieve our comrades who ensured the morning radio operation. We go along the beach, escorted by several raven-magpies which follow us in silence, rather than with their normal loud chatter. In a general way, we were surprised by the calm of the island. The terns which we had had the chance to see and live alongside throughout our stay in Tromelin had already left the island after the period of nesting (2 million couples of sooty terns). Only some small Red Fody (a bird common to Madagascar) were seen during our stay, perched at a height to secure against attacks of wildcats. The wildcats were introduced to fight against the proliferation of rats but it is mainly the population of terns that suffer. An eradication campaign of the wildcats is in progress.

The Red Fody is a brilliant red bird common to the areas around Madagascar.

We did not have the chance to renew the magic meeting we had on Tromelin in 2014 with the sea turtles leaving water to go to lay their eggs in the sand—not even a single opportunity of seeing the characteristic tracks in sand presented itself. Our authorization only permitted us to erect our tents no closer to the water than the first line of vegetation so as not to disturb the turtles. We had to follow similar instructions for our antennas and in addition had to attach colored ribbons to all guy wires to make them visible to the birdlife.

In the same way as we had to plan our arrival, we had to carefully plan our departure from the Island. We had to take into account the state of the tide and the height of the swell. By the final afternoon, we had only one generator, 4 HF stations, 5x VDA and a vertical for 40m and 30m. Everything else was back on the yacht.

During the last evening we each took a turn at operating to allow us all to experience the pileup one last time. We had already surpassed our target of 100,000 contacts but our enthusiasm did not waver.

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Our last QSO took place at 2100z on 10th April after twelve days and eight hours. In total we had 105,600 QSOs in our log.

Next morning, it was a race against time to dismantle everything that remained and have it removed from the Island back to the yacht before the turn of the tide. We were fortunate that there was no wind and the conditions were good. As the last load of equipment left on the tender, we examined our site very carefully to ensure we left everything as we found it—we had fully complied with our operating permit. Alas, the tide had now turned and the team had to wait for the next tide to leave the Island. We made use of our last moments on the Island to prepare one final meal using all the left over food. It also gave us the opportunity to have a look at the logs and our statistics. Our initial look showed that we made 60% of all QSOs with Europe, 21% with North America and 16% with Asia. We were happy to have achieved our objectives and allowed many amateur radio friends all over the World to make at least one contact with this very rare and remote island. We were also very proud that it was an entirely French expedition with the exception of Christian EA3NT (after two weeks of being with the team, he became almost French!), and that we were able to overcome some very complex and difficult problems. We were also able to demonstrate that it is possible for amateur radio and wildlife conservation to coexist without detriment to the environment.

We cannot finish this long story without warmly thanking all those who supported and helped us starting with companies: Elecraft, SPE Expert, Spiderbeam, DX Engineering, KD9SV, Microham, Messi & Paolini, DX Avenue, GM0OBX Cables, SunSDR.eu, ExpertElectronics, Antlion Audio, and F5JRC Print Shop.

On all the continents, we thank all of the clubs and foundations for their support in spite of a complicated season for their finances because of many DXpeditions in search of sponsors. An immense thank you to Northern California DX Foundation, as well as the **International DX Association**, German DX Foundation, Network of the French Transmitters, Clipperton DX Club, Colvin Award, Southeastern DX Club, Chiltern DX Club, Twin City DX Association, Eastern Iowa DX Association, NIDXA, Danish DX Group, European DX Foundation, Mediterraneo DX Club, OHDXF, Carolina DX Association, Willamette Valley DX Club, Swiss DX Foundation, Lone Star DX Association, Northern California DX Club, U.K. Six Meter Group, ORCA, CQ Hamradio JA, Western Washington DX Club, F8ATS Stamp Fund, ETDXA, The DX Group, GMDX Group, FEDXP, WVDXA, eQSL, Ehime DX, Utah DX, Tokyo 610, TDXS, SEMDXA, Lynx DX, GSDXA, Shizuoka DX, Delta DXA, RemoteHamradio.com, UFT, LIDXA, 599DX, NWIDXA, NOHDXA, ADXA, Nara DXA, Mile-Hi DXA, OKDXA, SEDCO, Passau DX, FWDXA, Mulan DX, GMDXA, KC5WXA, Spokane DXA, Madison DX, NADXC, SDXG, WNYDXA, GPDX, BARTG, DX Hogs, Most Wanted DX, Yokohama DXC, ARAN59, VADXCC, and Six Italia.

We wish to underline the exceptional help of the amateur radio community through all the people who took part in the project. Thanks to F6AGM, K1QX, F4ERS, F6BKI, F5VHJ, K6TU, N5FG, JA4DND, F5JRC, our pilots F5UKW, JJ3PRT, W0MM, ON9CFG.

In conclusion, we wish to thank cordially the staff of the French Southern Lands and Antarctic (TAAF) and its Prefect, the administrator of the TAAF, Mrs. Cécile Pozzo di Borgo who authorized us to carry out this mission and provided constant support during all the preparation.

. . . BACK TO THE PRESENT

While we are writing these last lines, Juan de Nova is nothing more than a dot on the horizon. We leave with a head full of memories, the SD cards of our camera boards crowded with photographs and videos, and 100000+ contacts in our log. There is no doubt that the actions of conservation done by the TAAF will make it possible to protect this marvelous island, and that one day perhaps, we may have the opportunity to visit again.

—73

FT4JA, *Seb* F5UFX & *Flo* F5CWU (adaptation by Tom GM4FDM)

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a lasting impact on DX.

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